

NEW SPECIES OF DEPPEA (RUBIACEAE) FROM CHIAPAS, MEXICO

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Deppea Cham. & Schlecht. is a Neotropical genus of about 25 species of shrubs, treelets or rarely small trees whose greatest center of diversity lies in the mountains of southern Mexico and Guatemala. (Lorence & Dwyer, in preparation). Recent collecting efforts for the ongoing project Flora of Chiapas by D. E. Breedlove have brought to light the following undescribed species of Deppea.

Deppea splendens Breedlove & Lorence, sp. nov. Type: MEXICO. Chiapas: Municipio of Motozintla de Mendoza, SW side of Cerro Mozotal, 11 km NW of junction of the road to Motozintla along road to El Porvenir and Siltepec, 2,100 m, 18 Sept 1976 (fl, fr), D.E. Breedlove 40258 (Holotype: CAS; Isotype: MEXU).

Species foliis verticillatis, inflorescentia grandi pendula 10-25 floribus, pedunculo 3.5-6.5 cm longo, pedicellis 1-3 cm longis, calycis lobis foliaceis subaequalibus 1.5-2.5 cm longis 3-7 mm latis in sicco rubescentibus, corolla longa hypocrateriformi tubo 5-5.5 cm longo lobis 8-14 mm longis, et capsula grandi 6-8 mm longa 5-7 mm lata distinguenda.

Shrub or small tree 5-8 m tall with major stems up to 10 cm in diameter, the twigs glabrous, 2-3 mm diam., minutely lenticellate, longitudinally wrinkled, the nodes crowded, annular, 3-20 mm distant; stipules thick, brown, deltoid-subulate, 2-4 mm long, 0.8-1.6 mm wide, deciduous, externally sparsely hirsutulous especially along the margins, internally villosulous and with 6-8 brown digitate collectors 0.1 mm long. Leaves ternate or opposite in the terminal portion of present year's growth, those of a whorl subequal to unequal, petiolate; petioles (0.3) 0.8-3.8 cm long, 0.6-1 mm diam., adaxially sulcate, when young hirsutulous along the margins, the trichomes simple, septate; lamina elliptic to ovate-elliptic, 4.5-15 cm long, 0.8-6 cm wide, the apex acuminate, the acumen 0.5-1.5 cm long,  $\pm$  falcate, the base narrowly cuneate to attenuate, the secondary veins 7-10 pairs festooned brochidodromous, the veins and costa abaxially prominent, yellowish to purplish, the lamina membranaceous to thinly chartaceous, drying olive green, slightly

discolorous, adaxially sparsely strigillose when young, glabrate, abaxially sparsely villosulous along the costa and secondary veins, the vein axils slightly barbate, the margin sparsely ciliolate, Inflorescence terminal, pendulous, cymose-corymbiform 16-25 flowered, 17-21 cm long, 12-14 cm wide including the corollas, the slender peduncle 3.5-8.5 cm long, 0.8-1 mm diam., the axes glabrate, subtended by linear-subulate ciliolate bracteoles 3-8 mm long, the primary branches 2-4, these 1-7 cm long, often branching again once, the ultimate branches with 4-10 flowers. Flowers on pedicels 1-3 cm long, 0.3-0.4 mm diam., the hypanthium glabrous, turbinate, 2-3 mm long, 2-2.5 mm wide, drying reddish, the calyx cup 0.5 mm deep, the lobes 4, subequal,  $\pm$  erect, foliaceous, venose, drying reddish, narrowly ovate-elliptic to lanceolate, 1.5-2.5 cm long, 3-7 mm wide, acute, the margins sparsely ciliolate; corolla yellow to orange when fresh, salverform, glabrous externally and internally, the tube 5-5.5 cm long, flared to 5-7 mm wide in the distal 2/3, the lobes 4, contorted in bud, at anthesis spreading to 90 or recurved, ovate-deltoid, 0.8-1.4 cm long, 3-4 mm wide, acute to acuminate; stamens 4, glabrous, the filaments 1.5-2 cm long, affixed 1.5-2 cm below the faux, the anthers linear, 7-8 mm long, the base sagittate, the apex obtuse, about half exerted; style 5-6.5 cm long including the ovoid stigma 1.5-2 mm long, equalling or slightly exceeding the stamens, villosulous in the basal half; ovary 2-locular, the placentas bar-like, peltate, with numerous ovules per locule. Capsule ellipsoid, compressed perpendicular to the septum, 6-8 mm long, 5-7 mm wide, bisulcate, greenish brown, weakly 6-costate, loculicidally dehiscent above the calyx ring, the persistent calyx lobes greenish, spreading at maturity; fruiting pedicels recurved and the fruits erect; seeds numerous, dark brown, angulate, 0.6-1 mm long, the testa shallowly reticulate, the inner walls papillose-reticulate, not pitted.

Distribution. Known only from the type locality in Chiapas, Mexico.

Habitat. It occurs in a steep canyon in montane rain forest with Pinus, Quercus, Oecopetalum, Clethra, and Symplocos at about 2,100 m elevation. It is an occasional shrub on steep slopes occurring in the understory with Phyllanthus, Omitelia, Kohleria, Miconia and Cestrum. Along small streams it becomes subdominant. The locality has been cleared of forest by local corn farmers in 1986 and only small remnants remain. No individuals of D. splendens were observed in the fall of 1986.

Material studied. MEXICO, Chiapas, type locality: 27 Jun 1972 (fl), Breedlove 25705 (CAS), Breedlove 25758 (CAS, MEXU); 29 Dec 1972 (fr), Breedlove & Thorne 31119 (CAS, MEXU); 23 Nov 1981 (fr), Breedlove & Bartholomew 55758 (CAS, MEXU).

Discussion. Because of its long tubular corolla large foliaceous calyx lobes and capsular fruits *Deppea splendens* resembles a number of other small or monospecific Rubiaceae genera that occur in Guatemala and southern Mexico, i.e. *Eizia* Standley, *Omitelia* Standley, and *Stylosiphonia* T.S. Brandege. Consequently, our first inclination was to refer it to one of these genera, which have traditionally been placed in the tribe Rondeletieae DC. of the subfamily Cinchonoideae Rafinesque (Standley 1916, 1921). However, raphides are present in *Deppea*, *Eizia*, and *Omitelia*, which are therefore referable to the subfamily Rubioideae sensu Verdcourt (Lorence & Dwyer, in preparation). In addition, the flowers are tetramerous in the former three genera as opposed to pentamerous in *Stylosiphonia*. Therefore *Stylosiphonia* must be excluded from consideration and from the Rubioideae. Kirkbride (1984a) created the tribe Deppeae to accommodate *Deppea*, *Omitelia* and *Schenckia*. *Eizia* should probably also be placed there.

*Deppea splendens* corresponds well with the genus *Omitelia* in terms of floral and vegetative morphology, including the whorled leaves (see Kirkbride 1984b). In *Omitelia*, however, (here interpreted to include only *O. filisepala* (Standl.) Morton and *O. longipes* Standl.) the capsules at first split loculicidally and then septicidally almost to the base. On the other hand, in *Eizia* and *Deppea* (including *D. splendens*), dehiscence is loculicidal and restricted to the apical portion of the capsule above the calyx where the vascular bundles are united into a ring that prevents the fruit from opening any further. *Omitelia* is thus excluded from consideration, leaving *Eizia* and *Deppea*. In *Deppea splendens* aestivation of the corolla in bud is contorted and does not correspond with that of *Eizia*, described by Standley (1940) as "imbricate (or convolute?)". In addition, *Eizia* differs by its sessile stamens, thickened stipules, and seeds with a cristate (not reticulate) testa.

In spite of its extreme floral morphology, *Deppea splendens* corresponds with the genus *Deppea* in all essential characters, notably its tricolpate pollen, tetramerous flowers with contorted corolla aestivation in bud, reticulate seeds, and loculicidal capsule dehiscence. The whorled leaves, although not common in the genus, do occur in one other *Deppea* species (Lorence & Dwyer, in preparation). Finally, the pendulous inflorescence and flowers with a large red calyx and long tubular corolla with partially included stamens appear to represent adaptations to hummingbird pollination in *D. splendens*. In contrast, the majority of *Deppea* species have small, erect or inclined flowers with yellow or white corollas, short corolla tubes, and exerted stamens characteristic of entomophily.

In 1981 seeds from Breedlove & Bartholomew 55758 were introduced by Bruce Bartholomew into the University of California Botanical Garden where they grew and flowered. Duplicate plants and cuttings were distributed to other Botanic Gardens and finally horticultural nurseries began growing the plant. In 1986 it was being offered for sale in coastal California nurseries under a variety of misapplied names.

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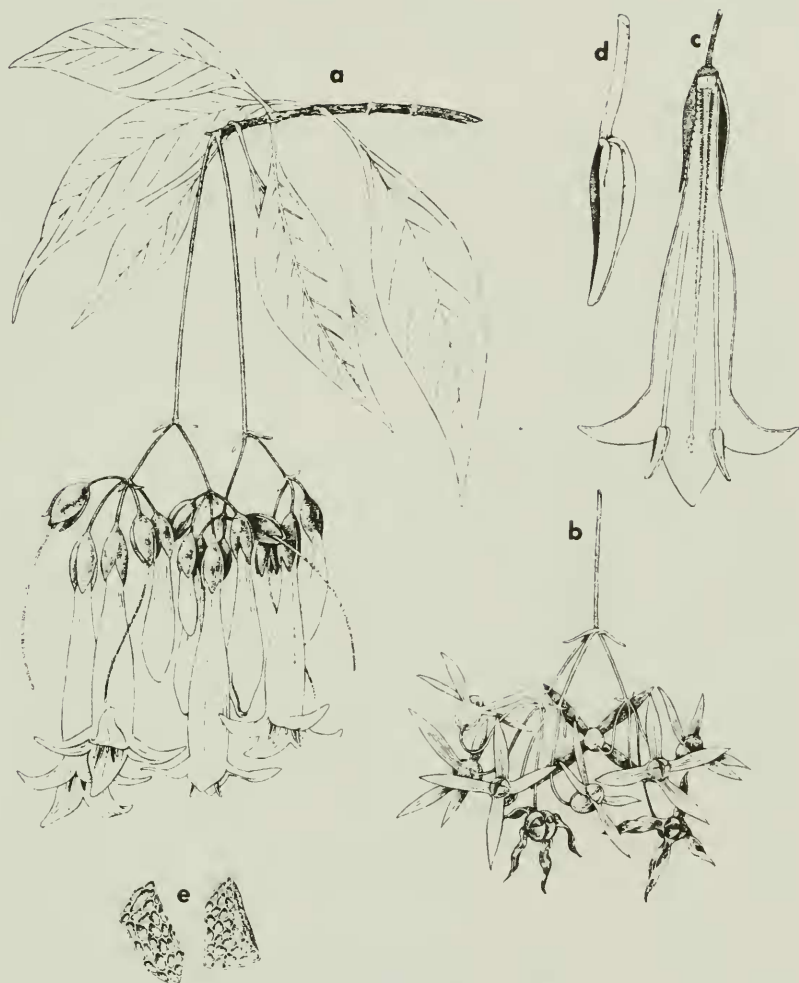


Fig. 1 Illustration of *Deppea splendens* Breedlove & Lorence  
 a) habit with inflorescence x .5; b) fruiting  
 inflorescence x .5; c) cut open flower x 1; d) anther  
 x 3.5; e) seeds x 15